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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,538	04/04/2001	Michael G. West	7293-13	5317

7590	01/20/2004	EXAMINER

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EXAMINER
NGUYEN, HAU H

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 01/20/2004   3

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/826,538	WEST ET AL.
	Examiner	Art Unit	
	Hau H Nguyen	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*04 April 2001*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
     closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-33* is/are rejected.

7)☒ Claim(s) *17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
     since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
     37 CFR 1.78.

     a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
     reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413) Paper No(s). _____.

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5)☐ Notice of Informal Patent Application (PTO-152)

3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u>.   6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claim 5 recites the limitation "the leading edge pointer". There is insufficient antecedent basis for this limitation in the claim. It is unclear to the examiner whether "leading edge signal" and "leading edge pointer" are different or the same. Claims 8-12, which are dependent upon claim 5, are thus rejected.

3.   Claims 6 and 7 recite the limitation "the counter circuit". There is insufficient antecedent basis for this limitation in the claim.

4.   Claim 24 recites the limitation "the reload read pointer". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1-4, 6-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al. (U.S. Patent No. 6,512,804).

Referring to claims 1-4, Johnson et al. teach a method for synchronizing parallel digital

data transmitted across a plurality of serial data channels. The apparatus includes a plurality of

regenerators, a clock tree and a plurality of FIFO buffers each associated with a regenerator. The

plurality of regenerators receive serial data from the plurality of serial data channels,

respectively. Each regenerator generates parallel data and a data clock based on the serial data

from the respective serial data channel. The clock tree generates a synchronous clock for

synchronizing the parallel data. Each FIFO buffer stores the respective parallel data based on the

respective data clock. The parallel data is read from the FIFO buffer based on the synchronous

clock (col. 1, lines 36-49). As shown in FIG. 1, a synchronization receiver 10 the receiver's input

12 has four serial channels 14 and its output 16 consists of a word of parallel data. Serial data on

the four serial channels are frequency locked, but have arbitrary phase, jitter, and skew. For each

input channel, the receiver has an analog-to-digital regenerator 18, a framer 20 and a channel-

lock first-in-first-out (FIFO) buffer 22. The outputs of the FIFO buffers are combined into the

output word by a parallel-data-lock circuit 24 (col. 2, lines 38-48). The regenerator 18 comprises

a serial to parallel converter that converts the serial data stream in parallel data based on a

reference clock (col. 2, lines 60-65). The framer generates the frame pulse that aligns the data to

a framing pattern which may occur anywhere in the high speed serial data stream on each

channel (col. 3, lines 8-12).

In regard to claim 6, Johnson et al. teach each FIFO buffer includes a data store, a

synchronous repetitive counter, a demultiplexer, a data repetitive counter and a multiplexer. The

data store has a plurality of parallel data locations for storing the parallel data in response to a

location select signal and for writing the parallel data in response to a write select signal (col. 1, lines 50-56).

Referring to claim 7, Johnson et al. teach the framer 20 for each channel 14 receives the parallel data signals 25 and the clock signal 26 from the corresponding regenerator 18 and further generates a frame pulse 30 and a reset signal 32. The reset signal indicates that a framer is receiving clocked data (col. 2, lines 66-67, and col. 3, lines 1-6).

7.   Claims 14-16, 18-23, and 25-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (U.S. Patent No. 6,151,334).

Referring to claims 14-15, 22-23, and 25-30, as shown in Fig. 1, Kim et al. teach a block diagram of a serial link system 20 for sending an isochronous digital data stream and one or more additional digital data streams over a single serial line. The serial link system 20 comprises an embedding unit 22, a removing unit 24, a single serial line 28 and a clock signal line 32 (col. 4, lines 16-22). As shown in Fig. 8, Kim et al. teach the removing unit 24 preferably comprises a serial-to-parallel converter 72, a word aligner 73, a stream selector 86, a de-multiplexor 74, a plurality of stream buffers 78b, 78c . . . 78n (FIFO buffers, col. 9, lines 25-28), and a plurality of decoders 80a, 80b, 80c . . . 80n, respectively. The removing unit 24 separates the serial data from the link 28 into a plurality of data streams. At the removing unit 24 side, the serial bit stream is converted to k-bit parallel data words and word aligned. The k-bit parallel words are then routed to the appropriate channel for decoding. The clock signal is preferably provided to each of the components 72, 74, 76, 78, and 80 in a conventional manner for use in processing the serial bit stream received on line 28 (col. 11, lines 41-55). As shown in Figs. 9, Kim et al. further teach the stream selector 76, which controls reading data streams, is also coupled to line 84 to

receive the encoded word from the serial-to-parallel converter 72. The stream selector 76 detects

special words and directs the words to the appropriate channels by controlling the de-multiplexor

74. For example, the stream selector 76 compares the word on line 84 to stream separation

words, and then couples line 84 with the appropriate stream channel represented by signal lines

88a, 88b, 88c, . . . 88n. Since each stream has a unique separation word indicating the start of a

data stream, the de-multiplexor 74 can be switched accordingly upon detection of the separation

words (col. 12, lines 45-59). Details of the stream selector is described in Fig. 9, which includes

a plurality of comparators 102a...102n, 102z, and a plurality of registers or hard-wired couplings

101a . . . 101n, 101z, such that each outputs a different isochronous data transfer word or a data

stream separation word. Comparator A 102z has a first input, a second input and an output and

compares the signals applied at its input for a match (col. 14, lines 2-30).

In regard to claims 16 and 31, as shown in FIG. 4A, Kim et al. video control signals are

sent by only sending only isochronous transfer words at the rising and falling edges of the sync

signal so the period when the video control signal doesn't change its value can be used to send

other data. Rising and falling edges of each video control signals have different special

characters. Data stream 1 is inserted during the horizontal blanking period and a start control

word (write pointer) identifying the data stream 1 is used at the head of the data stream 1. Each

multimedia data stream has its own special start control word for identification (col. 10, lines 7-

17).

In regard to claims 18-20, 32-33, Kim et al. teach a method for reading data stream,

wherein, as shown in Fig. 6, in step 620, the scheduler 46 outputs the control signals to the

multiplexor 48 to send a data word of the ith data stream. Next in step 622, the scheduler 46

tests whether there are more characters ith data stream that are stored in the corresponding buffer

that need to sent. If so, the method loops back to step 618 (reload read pointer). If not the

scheduler 46 continues in step 624, by testing whether this is the last data stream by comparing

the value of i to the value of n, the number of data streams. If i is not equal to n, the scheduler 46

increments the value of i in step 626 and thereafter continues in step 614. If i is equal to n, the

scheduler 46 outputs control signals to output the IDLE code in step 628, and then determines

whether there are any isochronous signal to be send such from the video control coder 40u or the

isochronous word coder 40v and outputs a control signal to send the isochronous control words

in step 630. After step 630, the scheduler 46 returns to step 600 (col. 10, lines 52-67, and col.

11, lines 1-36).

In regard to claim 21, Kim et al. teach data stream is inserted during the horizontal

blanking period and a start control word identifying the data stream is used at the head of the

data stream 1 (col. 10, lines 13-16).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al.

(U.S. Patent No. 6,512,804) in view of Digital Visual Interface (DVI) Version 1.0.

Referring to claim 13, as applied to claim 1, Johnson et al. teach all the limitations of claim 13,

except that the decoder meeting the digital visual interface specification version 1.0.

However, Digital Visual Interface Version 1.0 is admitted as prior art by Applicant.

Therefore, it would have been obvious to one skilled in the art to utilize the decoder as cited in

Digital Visual Interface Version 1.0 in order to obtain a lossless digital data transmission (page

6).

10.   Claim 17 is objected to as being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and

any intervening claims.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. See PTO-892 form.

Suemura et al. (US Patent No. 5,887,039) discloses ata transmission system using specific

pattern for synchronization.

Sankey et al. (US Patent No. 6,578,153) teach a method of communicating across a serial line

including a serial to parallel converter and alignment control block.

Vaughn et al. (US Patent No. 4,647,986) teach a method to accomplish real-time recording of

continuously produced video images with a multiple channel or parallel input digital disk drive,

including a circuit for correcting skew.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hau H. Nguyen whose telephone number is: 703-305-4104. The

examiner can normally be reached on MON-FRI from 8:30-5:30.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

        supervisor, Matthew Bella can be reached on 703-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
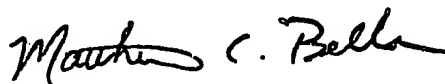
Washington, D. C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 Customer Service Office whose

telephone number is (703) 306-0377.

H. Nguyen

11/07/2003

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600